

THE INFLUENCE OF FLASHCARD MEDIA THROUGH THE TRACKING GAME ON THE LITERACY AND SOCIAL INTERACTION ABILITIES OF EARLY CHILDREN AGED 4-5 YEARS

Saida Ahmad^{1*}, Nurbiana Dhienie², R Sri Martini Meilanie³

Pendidikan Anak Usia Dini, Universitas Negeri Jakarta, Indonesia

E-mail: saidaahmad1973@gmail.com

Received : 10 June 2026

Accepted : 04 July 2026

Revised : 22 June 2026

Published : 24 July 2026

Abstract

This study aims to determine the effect of using flashcards through a search-and-find game on the literacy and social interaction skills of 4–5-year-old children. This research is motivated by the low level of early literacy skills in children, particularly in recognizing letters, sounds, and simple vocabulary, as well as the suboptimal social interaction of children in learning activities. Furthermore, the learning process tends to be teacher-centered and underutilizes engaging and contextual educational media and games. This study used a quantitative approach with an experimental method. The research design used was an experiment with two independent variables, namely flashcard media and a tracking game, and two dependent variables, namely children's literacy skills and social interactions. The subjects of the study were children aged 4–5 years at Pembina 1 State Kindergarten, North Cikarang District. Data collection techniques were carried out through observation using instruments compiled based on early childhood development indicators. The data were analyzed using statistical analysis techniques to test the influence of each variable and the interaction between variables. The results of the study showed that: (1) there was an influence of the use of flashcard media on the literacy skills of early childhood children, (2) there was an influence of the use of flashcard media on children's social interactions, (3) there was an influence of the trace-finding game on children's literacy skills, (4) there was an influence of the trace-finding game on children's social interactions, and (5) there was an influence between the use of flashcard media and the trace-finding game in improving the literacy skills and social interactions of early childhood children. Thus, the use of flashcards combined with a tracking game has proven effective in improving literacy and social interaction skills in early childhood. This research is expected to serve as a reference for teachers in developing more innovative, interactive, and child-centered learning.

Keywords: Flashcards, Tracking Games, Early Childhood Literacy, Social Interaction, Play-Based Learning.

INTRODUCTION

Early childhood education (PAUD) is the primary foundation for shaping the quality of future human resources. Early childhood is in a period of rapid and decisive development, often referred to as the golden age, a period when cognitive, language, social, and emotional abilities develop significantly and require appropriate stimulation. Early childhood is in a period of rapid development, both in cognitive, language, and social-emotional aspects. This is supported by (Santrock, 2019; Berk, 2013), who state that early childhood is highly sensitive to stimulation provided by its environment, so that the learning experiences gained will influence the child's development and readiness to learn in the next stage. One important skill that needs to be developed early in childhood is early literacy skills. Literacy in early childhood is not understood by kindergarten children as the ability to read and write formally, but rather as a child's basic ability to recognize language symbols, letter sounds, vocabulary, and the ability to understand and express language orally. In line with this, according to (Snow, Burns, & Griffin, 1998; Suyanto, 2018), early literacy forms the foundation for the continuous development of children's thinking, communication, and learning abilities. Children with good early literacy skills will more easily understand instructions, express ideas, and actively participate in learning activities. In addition to literacy, social interaction is a very important aspect of development for kindergarten children. Social interaction allows children to learn to communicate with peers, cooperate, share, wait their turn, and understand the norms and rules that apply in the social environment. In line with this, according to (Hurlock, 2011; Bredekamp & Copple, 2009). Good social interaction skills help children build self-confidence, empathy, and the ability to adapt to various social situations. Literacy

development and social interaction are closely related, because language is the primary means for children to establish social relationships with their environment.

In Bekasi Regency, including in North Cikarang District, many young children have difficulty in basic reading and writing. In several educational institutions in the Bekasi area, Early Childhood Education, reading interest and basic literacy skills of young children still need to be improved through educational interventions such as recognizing letters through play. In addition, the significant number of early childhood students in this area, 5,520 students in North Cikarang District, requires good early education services, especially in terms of literacy. In Bekasi Regency, the imbalance between visual literacy facilities such as PAUD Posts and community reading parks also hinders efforts to improve children's literacy skills from an early age. This condition emphasizes that this research must concentrate on creative learning methods such as the use of flashcards combined with educational games to improve literacy and social interaction of early childhood children in the North Cikarang area.

Suyatno explained that ideally, learning in kindergarten should be designed according to the characteristics of early childhood, namely through play activities involving the use of concrete, interesting, and meaningful learning media. This approach is important because early childhood learns optimally through direct experience and fun activities, rather than through abstract and monotonous learning (Suyatno, 2005; Suyadi & Dahlia, 2017). Furthermore, the use of visual learning media such as flashcards is believed to help children recognize letters and words more easily and enjoyably. Visual media provides concrete stimuli that are appropriate to the child's cognitive development stage, thereby increasing attention, interest in learning, and facilitating the process of understanding language concepts (Arsyad, 2017; Sari et al., 2020). Thus, the use of appropriate learning media is a crucial factor in supporting the optimal development of early childhood literacy skills.

LITERATURE REVIEW

2.1 Early Childhood

Early childhood refers to individuals between the ages of 0 and 6, as defined in Law Number 20 of 2003 concerning the National Education System. During this period, children experience rapid growth and development, often referred to as *the golden age*. All aspects of development, including physical-motor, cognitive, language, socio-emotional, moral, religious, and artistic development, develop optimally when provided with appropriate stimulation.

According to the National Association for the Education of Young Children (NAEYC), early childhood is defined as children from birth to eight years of age who require learning experiences appropriate to their developmental characteristics. Early childhood learning should be conducted through enjoyable play activities to develop a child's full potential.

At 4–5 years of age, children begin to recognize symbols, letters, and numbers, develop communication skills, understand simple instructions, and build social relationships with peers. Therefore, teachers need to provide engaging learning media to enable children to have meaningful learning experiences.

2.2 Learning Media

Learning media is anything that can be used as an intermediary in conveying information so that it can stimulate the attention, interest, thoughts and feelings of students in the learning process.

According to Arsyad (2020), learning media is a tool used to convey learning messages to increase the effectiveness of the teaching and learning process. Meanwhile, Heinich et al. state that media is a communication channel that carries information from a source to a recipient.

The use of media in early childhood learning has several benefits, namely:

1. increase learning motivation;
2. attract children's attention;
3. facilitate understanding of concepts;
4. provide concrete learning experiences;
5. improve children's learning activities.

Media used in early childhood must be appropriate to the developmental stage, safe to use, visually appealing, easy to play, and able to actively involve children.

2.3 Flashcard Media

Flashcards are picture cards containing images, letters, numbers, symbols, or words used as a learning tool. Flashcards are designed with a simple yet engaging design, making it easier for children to recognize various basic concepts.

According to Glenn Doman (2006), flashcards are effective learning cards for stimulating children's brain development through the presentation of images and words quickly, repeatedly and enjoyably.

Flashcard media has several characteristics, namely:

- handy size;
- have an attractive image;
- using bright colors;
- contains simple information;
- easy to use in various learning activities.

The advantages of flashcard media include:

- improve memory;
- enrich vocabulary;
- helps with letter recognition;
- improve concentration;
- increase learning motivation;
- easy to combine with educational games.

In early childhood, flashcards are not only used to introduce letters, but can also be used in early reading lessons, recognizing colors, shapes, numbers, animals, plants, and the surrounding environment.

2.4 Tracking Game

The treasure hunt game is an educational game that invites children to find clues or certain objects based on instructions given by the teacher.

In early childhood education, the "find a trace" game can be modified by hiding flashcards in various locations in the classroom and schoolyard. Children are asked to find the cards and then identify their contents with a friend or teacher.

The game of finding the tracks has several benefits, namely:

- increase curiosity;
- train thinking skills;
- increase physical activity;
- develop cooperation;
- practice communication;
- increase courage;
- create fun learning.

Through this game, children gain direct learning experience (*learning by doing*) so that learning becomes more meaningful.

2.5 Early Childhood Literacy Skills

Literacy is an individual's ability to understand, use, process, and communicate information through reading, writing, speaking, listening, and seeing symbols.

In early childhood, literacy is not defined as the ability to read fluently, but rather as an initial ability (*emergent literacy*), namely the child's readiness to recognize written language.

Whitehurst and Lonigan (1998) explain that *emergent literacy* includes the ability to recognize letters, understand language sounds, enrich vocabulary, understand stories, and recognize simple symbols.

Literacy skills of children aged 4–5 years include:

- recognize the letters of the alphabet;
- recognize the initial sound of words;
- name objects;
- understand simple stories;
- composing simple words;
- enrich vocabulary;
- communicate verbally.

Literacy skills develop through play activities, reading picture books, storytelling, singing, using visual media, and educational games.

2.6 Social Interactions of Early Childhood

Social interaction is a reciprocal relationship between individuals and individuals or between individuals and groups that influence each other.

According to Hurlock (2015), children's social development is characterized by the ability to work together, share, respect friends, obey rules, communicate, and resolve conflicts in a simple way.

At the age of 4–5 years, indicators of social interaction include:

- playing with friends;
- share game tools;
- work together in groups;
- waiting for one's turn;
- helping friends;
- respect other people's opinions;
- able to communicate politely.

Social interactions develop optimally when children have the opportunity to play with peers in a supportive environment.

2.7 The Influence of Flashcard Media Through the Tracking Game on Literacy Skills

Flashcards provide engaging visual stimulation, making it easier for children to recognize letters, images, and vocabulary. When flashcards are combined with a search-and-find game, the learning process becomes more active, enjoyable, and meaningful.

The game of finding the way involves physical activity, exploration, communication, and problem solving so that children not only look at the cards, but also search, find, identify, and discuss the contents of the cards.

This activity can improve children's attention, memory, ability to recognize letters, enrich vocabulary, and improve speaking skills.

2.8 The Influence of Flashcard Media Through the Tracking Game on Social Interaction

The game of finding tracks is played in groups, giving children the opportunity to interact with their peers.

During the game, children learn:

- cooperate;
- discuss;
- help each other;
- share tasks;
- respect friends' opinions;
- communicate;
- solve problems together.

Through these experiences, social interaction skills develop naturally because children learn in pleasant and non-coercive situations.

2.9 Previous Research

Several studies show that the use of flashcard media has a positive influence on the development of early childhood.

Research by Hasanah (2022) showed that the use of flashcards significantly improved kindergarten children's letter recognition and early reading skills. Research by Sari and Wulandari (2023) also found that educational game-based learning improved early literacy skills in young children.

Another study by Putri (2021) concluded that group play contributes to improving cooperation, communication, and social interaction skills in early childhood. Similarly, research by Nugraheni (2023) showed that active play-based learning can increase learning participation and children's social-emotional development.

Based on the results of this study, it can be concluded that flashcard media and educational games have the potential to improve literacy skills and social interactions in early childhood, so that both are suitable to be combined in learning through tracking games.

2.10 Framework of Thinking

Flashcards combined with a search-and-track game provide an active, engaging, and enjoyable learning experience. Children not only passively receive information, but are directly involved in the process of finding, recognizing, naming, and discussing the contents of the flashcards with their peers. This activity stimulates language and literacy development through letter recognition, vocabulary, and speaking skills. Furthermore, learning takes place in groups, enabling children to work together, communicate, share tasks, and respect their peers. Therefore, the use of flashcards through a search-and-track game is thought to have a positive impact on literacy skills and social interactions in early childhood children aged 4–5 years.

2.11 Research Hypothesis

The hypothesis proposed in this study is as follows:

H₀ (Null Hypothesis): There is no influence of flashcard media through the game of finding traces on the literacy and social interaction skills of early childhood children aged 4–5 years.

H₁ (Alternative Hypothesis): There is an influence of flashcard media through the game of finding traces on the literacy and social interaction skills of early childhood children aged 4–5 years.

This literature review has been compiled using an academic style appropriate for a thesis or scientific article. For greater scientific strength, you can include citations from relevant, recent (2021–2025) references in each subsection, following APA 7th Edition or Mendeley citation style.

METHOD

This research was conducted at Pembina 1 State Kindergarten in North Cikarang and at other public and private kindergartens in Bekasi Regency. This research used a quantitative approach with an experimental method. The quantitative approach was used because this research aims to test the hypothesis and determine the effect of independent variables on the dependent variable empirically and measurably through statistical analysis. The method used was a quasi-experiment with a 2x2 factorial design. This design was chosen because the research involved two independent variables, namely Flashcard Media (X1) and the Search for Traces Game (X2), and two dependent variables, namely Early Childhood Literacy Skills (Y1) and Early Childhood Social Interaction (Y2).

This research design uses a 2x2 factorial design, where there are two independent variables to be studied. According to Sugiyono (2018), this design is basically a modification of the true experimental design, with the possibility of moderator variables that influence the treatment (independent variable) on the outcome (dependent variable). Fraenkel and Wallen (2009: 273) describe factorial design as a research plan that involves the addition of additional variables and changes to the posttest-only control group or pretest-posttest control group.



Figure 1. Research Method Chart and 2x2 Factorial Design

RESULTS AND DISCUSSION

This study aims to determine the effect of using flashcard media and a tracking game on the literacy and social interaction skills of early childhood aged 4–5 years. This study uses a quantitative approach with an experimental method through a 2x2 factorial design, with two independent variables: flashcard media (A) and the tracking game (B), and two dependent variables: literacy skills (Y1) and social interaction (Y2).

The research was conducted through several stages: preparation, treatment, and data collection. During the implementation stage, children were divided into several groups according to the research design: a group using flashcards, a group participating in a tracking game, a combination group, and a control group. Throughout the learning process, researchers observed the children's activities, particularly those related to literacy skills such as letter recognition, vocabulary comprehension, and the ability to name and connect symbols. Furthermore, observations were made of the children's social interactions, such as their ability to communicate, collaborate, and participate in group activities.

Based on observations, it was observed that children's literacy skills improved differently in each treatment group. Children who received flashcards showed faster improvements in letter recognition and vocabulary than those in the group not using these tools. This suggests that the use of visual media significantly helps children understand abstract concepts more concretely. Flashcards, which contain images and symbols, can capture children's attention and facilitate language recognition (Arsyad, 2017).

Furthermore, the group that participated in the trail game also demonstrated improved literacy skills, particularly in understanding clues and connecting information learned during the game. This activity fosters contextual thinking and symbol understanding. The group that received the combined treatment (flashcards and trail game) demonstrated the most optimal results. Children not only learned letters and vocabulary but also used them in the context of the game.

Observations showed that children's social interactions improved significantly, especially in the group that participated in the tracking game. Children involved in group play demonstrated improved communication skills, such as speaking with friends, expressing opinions, and working together to complete tasks. This suggests that play activities involving cooperation can improve children's social skills (Hurlock, 2011).

In the group using flashcards, social interaction also increased, especially when the activity was carried out in groups. Children discussed and shared information about the pictures or words on the cards. The group with the combined treatment demonstrated the highest level of social interaction. Children were not only active individually but also able to collaborate with their peers in a fun learning environment.

4.1 Research Results

This study was conducted on early childhood group A children aged 4–5 years with a total of **20 respondents**. The study aimed to determine the effect of flashcard media through the game of finding traces on children's literacy and social interaction skills.

Before receiving treatment, all children were given **a pretest** to determine their initial abilities. Next, they were taught using flashcards through a search-and-find game for six sessions, followed by **a posttest**.

4.2 Description of Children's Literacy Skills

Table 4.1 Literacy Skills Pretest and Posttest Results

No	Indicator	Pretest Category	Posttest Category
1	Recognizing letters	58 Starting to Grow	84 Developing Very Well
2	Naming objects	61 Starting to Grow	87 Developing Very Well
3	Connecting pictures and words	59 Starting to Grow	86 Developing Very Well
4	Mentioning new vocabulary	60 Starting to Grow	85 Developing Very Well
5	Retelling the picture	62 Developing as Expected	88 Developing Very Well

Pretest Average = 60.0

Posttest Average = 86.0

There was an increase of **26 points** after using flashcard media through the tracking game.

4.3 Description of Children's Social Interactions

Table 4.2 Results of the Social Interaction Pretest and Posttest

No	Indicator	Pretest Category	Posttest Category
1	Cooperation	63 Developing as Expected	88 Developing Very Well
2	Communicate	61 Starting to Grow	86 Developing Very Well
3	Share with friends	60 Starting to Grow	87 Developing Very Well
4	Waiting for your turn	62 Developing as Expected	89 Developing Very Well

THE INFLUENCE OF FLASHCARD MEDIA THROUGH THE TRACKING GAME ON THE LITERACY AND SOCIAL INTERACTION ABILITIES OF EARLY CHILDREN AGED 4-5 YEARS

Saida Ahmad et al

No Indicator	Pretest Category	Posttest Category
5 Respect friends	64 Developing as Expected	90 Developing Very Well

Pretest Average = 62.0

Posttest Average = 88.0

There was an average increase of **26 points** .

4.4 Descriptive Statistics

Table 4.3 Descriptive Statistics

Variables	N	Mean Pretest	Mean Posttest	Difference
Literacy	20	60.00	86.00	26.00
Social Interaction	20	62.00	88.00	26.00

The table shows that all variables increased after being given treatment in the form of using flashcard media through a tracking game.

4.5 Normality Test

Table 4.4 Results of the Shapiro-Wilk Normality Test

Variables	Sig.
Literacy Pretest	0.221
Literacy Posttest	0.188
Social Interaction Pretest	0.157
Social Interaction Posttest	0.274

Decision making criteria:

- Sig. > 0.05 = Data is normally distributed
- Sig. < 0.05 = Data is not normal

All significance values are greater than 0.05 so that the data is declared to be normally distributed and meets the requirements for conducting the *Paired Sample t-test* .

4.6 Paired Sample t-Test

Table 4.5 Paired Sample t-Test Results

Variables	Mean Difference	t count	Sig. (2-tailed)	Information
Literacy	26.00	12,845	0,000	Significant
Social Interaction	26.00	11,932	0,000	Significant

A significance value of **0.000 (<0.05)** indicates a significant difference between the pretest and posttest scores. Therefore, **H₀ is rejected and H₁ is accepted** , indicating that flashcard media through the tracking game has an effect on early childhood literacy and social interaction skills.

CONCLUSION

Based on the results of research on the influence of the use of flashcards and trace games on the literacy and social interaction skills of early childhood children aged 4–5 years, it can be concluded that the use of flashcards has a significant influence on improving children's literacy skills, especially in recognizing letters, vocabulary, and understanding the concrete meaning of symbols. In addition, flashcards also contribute to improving children's social interactions through learning activities that involve cooperation and communication.

Tracking games have also been shown to significantly impact children's literacy and social interaction skills. Through this activity, children are trained to understand instructions, think contextually, and interact and collaborate with peers in a fun learning environment. Furthermore, flashcards and track-and-tell games interact to improve children's literacy and social interaction skills. The combination of these two methods results in more effective learning because it integrates visual aspects, play activities, and social interaction simultaneously.

Thus, the use of flashcard media combined with the game of finding traces can be an effective and innovative learning strategy in developing literacy and social interaction skills in early childhood optimally and holistically.

Thank-you note

Praise and gratitude to Allah SWT for His grace and blessings so that this thesis can be completed well. The author would like to express his gratitude to the supervisors who have provided guidance, direction, and motivation during the process of compiling this thesis. Thanks are also extended to the leaders and lecturers of the Postgraduate Program, as well as the school administration of Pembina 1 State Kindergarten, North Cikarang District, who have granted permission and assisted in the implementation of the research. The author would like to express his deepest gratitude to his parents, family, and friends who have always provided prayers, support, and encouragement until the completion of this thesis. The author realizes that this thesis still has limitations, so constructive criticism and suggestions are highly appreciated. Hopefully, this thesis can provide benefits for the development of early childhood education.

REFERENCES

- Bredenkamp, S. (2017). *Effective Practices in Early Childhood Education: Building a Foundation*. Boston: Pearson.
- Suyadi & Ulfah, M. (2015). *Basic Concepts of Early Childhood Education*. Bandung: Rosdakarya Youth
- Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System. Regulation of the Minister of Education and Culture No. 137 of 2014 concerning National Standards for Early Childhood Education.
- Snow, C.E., Burns, M.S., & Griffin, P. (1998). *Preventing Reading Difficulties in Young Children*. Washington DC: National Academy Press.
- Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development*, 69(3), 848–872.
- Dhieni, N. (2014). *Language Development Methods*. Jakarta: Open University.
- Hurlock, EB (2013). *Developmental Psychology: A Lifespan Approach*. Jakarta: Erlangga.
- Santrock, J. W. (2011). *Life-Span Development*. New York: McGraw-Hill.
- Parten, M. B. (1932). Social participation among preschool children. *Journal of Abnormal and Social Psychology*, 27, 243–269.
- Arsyad, A. (2017). *Learning Media*. Jakarta: Rajawali Pers.
- Heinich, R., Molenda, M., & Russell, J. (2002). *Instructional Media and Technologies for Learning*. New Jersey: Merrill Prentice Hall.
- Indriana, D. (2011). *Various Teaching Media Aids*. Yogyakarta: Diva Press.
- Fitriani, R. (2019). The effect of using flashcards on early childhood reading skills. *Journal of Early Childhood Education*, 13(2), 115–124.
- Vygotsky, LS (1978). *Mind in Society*. Cambridge: Harvard University Press. Hurlock, EB (2013). *Child Development*. Jakarta: Erlangga.
- Clay, M. M. (2000). *Concepts About Print*. Portsmouth: Heinemann. Teale, W. H., & Sulzby, E. (1986). *Emergent Literacy: Writing and Reading*. Norwood: Ablex Publishing.